



Synchronous and asynchronous teacher electronic feedback and learner uptake in ESL composition

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ABSTRACT

We know little about how teacher feedback and student revisions are influenced when feedback is given electronically. This study contributes to a better understanding of teacher electronic feedback (TEF) in second language writing by investigating its effectiveness in face-to-face and online ESL writing classes in which TEF was offered asynchronously, as Word comments and track changes in electronic drafts, as well as in synchronous text chats between teachers and students. TEF was extracted from 93 drafts written by 64 students and 93 chats in which they conferred with their teachers. Students' perceptions about TEF were then solicited via a survey. Additionally, the three participating teachers were interviewed about their use of TEF. Findings show that most TEF was successfully implemented or attempted, and that it was focused on content. Important conclusions are that TEF is effective, and synchronous TEF effectively reinforces asynchronous TEF.

Whether teacher feedback on L2 writing is effective remains an important discussion in applied linguistics. Research aside, feedback is “a central aspect of L2 writing” (Hyland & Hyland, 2006a, p. 83) primarily because learners expect to receive feedback and teachers feel obligated to offer it (Bitchener & Ferris, 2012; Guénette, 2007). With the recognition of the importance of fine-tuning feedback to specific populations and contexts (Ferris, Liu, Sinha, & Senna, 2013) comes the need to expand the research on feedback to new settings – including electronic and synchronous contexts.

Electronic contexts have increasing relevance in L2 writing pedagogy, especially in higher education. In the contemporary L2 writing class, the provision of feedback via electronic files, chats, wikis, and blogs is no longer unusual (Elo & Oskoz, 2017; Hyland & Hyland, 2006a). Both automatic, computer-generated feedback and human-generated, computer-mediated feedback can be provided electronically, synchronously as well as asynchronously. However, electronic feedback and its effectiveness have been understudied (Ene & Upton, 2014; Goldstein, 2006). The current study seeks to contribute to a better understanding of teacher electronic feedback (TEF) in L2 writing by investigating the effectiveness of TEF as well as student and teacher perceptions about it in English as a Second Language (ESL) writing classes at a U.S. university.

1. Background

1.1. Feedback effectiveness

Feedback as a generic term includes comments/commentary/response as well as corrective feedback (CF), which focuses on

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formal aspects of learners' language and is provided with the intent to improve linguistic accuracy. Feedback is often categorized based on the source: teacher-, peer-, or tutor-feedback. It can be provided by the person giving feedback (handwritten or computer-mediated) or computer-generated (automatic). The sections below summarize the current understanding of the effectiveness of feedback categories relevant to this study, including CF, commentary/response, and human-generated teacher electronic feedback (TEF) in synchronous and asynchronous computer-mediated communication (CMC).

1.1.1. *Corrective feedback*

Many recent studies about teacher feedback on ESL writing continue to examine grammar correction or written corrective feedback (CF/WCF) (e.g., Diab, 2015; Ferris et al., 2013). While researching linguistic development has value for shedding light on the effects of feedback on accuracy, studies have been criticized (see Ferris, 1999, 2010; Xu, 2009) for isolating feedback that focuses only on a few forms (e.g., nouns or syntax) or selected types of feedback (e.g., coding, circling, or error description). However, some notable findings have emerged from accuracy studies. It has become clear that, particularly at lower proficiency levels, the most effective CF is direct (it provides a correction where an error exists), explicit (it states that an error exists and may explain how the error can be corrected), and systematically focused on forms selected according to a guiding principle such as error gravity or patterns. Indirect CF – which identifies errors through the use of a code or mark – can be as effective as direct feedback when it is accompanied by meta-linguistic feedback consisting of explanations about which rule should be applied and what steps should be followed to correct the error (Baker & Bricker, 2010; Bitchener, 2008; Ellis, 1993; Ellis, Loewen, & Erlam, 2006; Ellis, Sheen, Murakami, & Takashima, 2008; Ellis, 2009; Ene & Upton, 2014; Ferris & Roberts, 2001; Sheen, 2007). Ferris (2010) has proposed that direct and indirect CF complement each other, with direct feedback supporting accuracy while indirect feedback better engages learners in “guided problem-solving” (p.190). In sum, a sizeable body of research has demonstrated that CF is useful (Bitchener & Ferris, 2012).

1.1.2. *Teacher comments/response*

To widen the focus of the research on feedback, a number of studies have taken a compositionist perspective, looking at the effects of teachers' comments/responses about content and organization on student writing and revision. Such studies have usually found that ESL teacher feedback focuses primarily on global issues of content/ideas and organization (2001, Ferris, 1997; Ferris, Pezone, Tade, & Tinti, 1997; Hyland & Hyland, 2001; Zamel, 1982). Ferris et al. (1997) observed that teacher commentary on 111 drafts consisted primarily of comments written in the margins of the papers and focused more on content and organization by asking questions and requesting text-based information. In a later study, Ferris and Hedgcock (2005) identified text-specific commentary given in the margins of student papers as appearing to be the most effective feedback in terms of uptake. Ferris et al. (1997) also indicated that content- and organization-related comments were given equally to strong and less strong writers, although the “weak” writers received more grammar feedback. Other researchers have noted that the most effective feedback balances global and grammar feedback (Straub & Lunsford, 1995), which students seem to be able to attend to equally, in the same draft (Ashwell, 2000; Fathman & Whalley, 1990). As Bitchener and Ferris (2012) have suggested, studies that portrayed teacher feedback as “overly controlling, directive, and excessively focused on form may no longer accurately describe the practices of modern composition instructors” (p.79). However, the impact of teacher feedback on student writing development is still not completely clear (Goldstein, 2005; Hyland & Hyland, 2006b). Importantly, we know little about how teacher feedback and student revision are influenced when feedback is given electronically, although electronic tools affect potentially all aspects of learning (Elola & Oskoz, 2016).

1.1.3. *Electronic feedback in L2 writing*

Electronic feedback (e-feedback) has gained recent attention due to the rapid growth of the use of CMC in language classes. It has become common for teachers of university writing to require students to submit their papers electronically through classroom/learning management systems (e.g., Blackboard or Canvas) and to provide feedback on student papers electronically in online chats, forums, or via e-mail or word-processing software (Elola & Oskoz, 2017; Hyland & Hyland, 2006b). Computer-mediated feedback can be provided either synchronously (typically through online chats) or asynchronously.

Synchronous CMC adds a sense of presence, spontaneity, and democracy to the L2 writing classroom (Blake & Zyzik, 2003; DiGiovanni & Nagaswami, 2001). As a “conversation in slow motion” (Beauvois, 1998, p. 198), synchronous CMC is an environment in which students can stay on task and have equal opportunities to be guided by the supervising teacher (DiGiovanni & Nagaswami, 2001). Studies have documented improvements in linguistic accuracy following the use of chats. Sauro (2009) considered the pace of the text-based chat to have contributed to the effectiveness of the recasts and metalinguistic feedback provided, as both resulted in higher accuracy. Morris (2005) determined that the feedback realized as negotiation between peers led to immediate repair of lexical and syntactic errors. In her study on peer feedback and essay revision in a French class, Schultz (2000) deemed synchronous CMC less time-efficient than face-to-face peer review but noted that the more advanced students benefitted the most from the alternative use of synchronous CMC and face-to-face feedback; additionally, specific ideas discussed in synchronous CMC were successfully used in revisions. However, some warn that synchronous CMC may increase focus on lexicon and grammar (Blake & Zyzik, 2003; Schultz, 2000). In addition, synchronous CMC can be time-consuming and inefficient for peer-review and revision of essays (Schultz, 2000).

Asynchronous e-feedback (such as email, discussion board messages, or comments/track changes in Microsoft Word) also has a number of positive effects on language and writing development. Studies examining the effectiveness of asynchronous peer e-feedback determined that it led to improvements in grammar, spelling, and vocabulary (Tolosa, East, & Villers, 2013); grammar, spelling, vocabulary, and discourse (Vinagre & Muñoz, 2015); and morphosyntax (Ware & O'Dowd, 2008). Tolosa et al. (2013) and Vinagre and Muñoz (2015) warned of the students' tendency to focus on form more than discourse, despite the linguistic

improvements noted. Additionally, Ware and O'Dowd (2008) pointed out that asynchronous CMC permitted their telecollaborating students to observe language use and apply it later, with an increased sense of audience (Ho & Savignon, 2007). Tuzi (2004) commended a web-based writing environment for expanding the audience and number of sources of input for student writing. He found that asynchronous peer e-feedback offered via a web site triggered more and deeper revisions than oral feedback from peers and tutors at the clause, sentence, and paragraph levels. Despite such benefits, some studies have critiqued asynchronous CMC and e-feedback for being slow and not encouraging interaction or deep revisions (Guardado & Shi, 2007; Ho & Savignon, 2007; cf. Martin-Beltran & Chen, 2013).

Few existing studies examine teachers' use of Word comments on L2 writing, and even fewer look at teacher e-feedback on ESL writing. This is surprising, considering the centrality of the teacher as a main source of feedback in the L2 writing class (Elola & Oskoz, 2016; Ene & Upton, 2014; Schultz, 2000; Ware & O'Dowd, 2008), and that the use of comments and track changes in Word are likely the most accessible tool of asynchronous e-feedback. In their study of teacher feedback on fourth-semester German writing assignments, Ducate and Arnold (2012) compared Word comments to screencast (audio and video) asynchronous feedback. They found that both types of asynchronous feedback were effective to a similar degree, resulting in successful uptake 30–35% of the time. Their students affectively favored the screencast feedback for being faster, clearer, and easy to replay, prompting the authors to reflect on the difficulties teachers face when trying to use the relatively less novel Word comments. Similarly, Elola and Oskoz (2016) compared Word comments with screencasts as means for providing TEF on advanced Spanish narrative writing. The tools used by the instructor in their case study affected the type of e-feedback provided. Although the number of e-feedback comments offered in the two modalities was similar, Word comments focused more often and explicitly on form, while the screencast comments were lengthier and focused more on content, structure, and organization. The learners responded to all or most of the teacher's e-feedback on content and style regardless of the modality used (Word comments or screencasts) and corrected similar percentages of form-focused e-feedback for both. The learners perceived the screencast to be more natural despite their familiarity with Word comments. Ene and Upton (2014) is the only study we are aware of that focuses on teacher e-feedback offered by teachers as Word comments on electronic drafts in university-level ESL composition courses. In their longitudinal study, Ene and Upton (2014) found that most of the teachers' Word comments focused on content and led to successful uptake and attempts to revise all aspects of writing (content, organization, grammar, and mechanics).

Few studies have examined the combined use of synchronous and asynchronous e-feedback, and none have focused on teacher e-feedback. Although the following studies focus on peer e-feedback, they do shed light on how learners react to different modes of feedback. In a study of email and chat feedback, Honeycutt (2001) suggested that email "supports deeper processing of documents" (p. 51), allowing students to return to the feedback and revisions for deeper consideration, and that chat is also a useful, interactive part of the writing process. Liu and Sadler (2003) examined the revisions made by students who participated in peer reviews using asynchronous Word comments and synchronous multi-user object oriented (MOO) chats, comparing them with a group who used the more traditional pen-and-paper feedback and face-to-face peer conferences. Word comments were the most numerous and revision-oriented but locally-focused, while MOO chat comments were globally-oriented, did not reinforce the Word comments, and were less effective at triggering revisions. Combined, the technology-enhanced group, which used Word comments and MOO chats, made more comments overall and more revision-oriented comments in particular; nevertheless, the percentage of revisions was much higher for the group using traditional forms of feedback. Affectively, the students liked the MOO chat more than Word comments, which took too long to exchange, although they were less face-threatening to use, more salient, and easier to elaborate. Overall however, the students preferred face-to-face interaction. The authors highlighted the larger quantity of revision-oriented comments given cumulatively via Word and MOO chat comments as an affordance of the electronic environment and suggested that the use of Word editing combined with face-to-face interaction would be an effective two-step pedagogical procedure. Without measuring uptake, Ware (2004) investigated three ESL students' perceptions of peer e-feedback received via synchronous chats and asynchronous discussion boards. Her findings showed that CMC is perceived as a safe environment which heightens awareness of audience and purpose and allows student writers to apply their knowledge from previous writing situations (such as from general email use to emailing for review purposes). The study also confirmed that students' main audience remains the teacher, confirming the importance of teachers as a feedback source.

Since teacher e-feedback has been so rarely investigated, it comes as no surprise that teachers' perceptions about electronic feedback have not been documented, although teachers are the ones who decide how to use it, and their insights can help other practitioners to improve their own use of e-feedback in L2 writing. Conversely, student perceptions have been solicited in almost every study reviewed above. Generally, the finding is that students perceive e-feedback as useful (Elola & Oskoz, 2016; Liu & Sadler, 2003; Lu & Bol, 2007) but affectively favor dynamic synchronous CMC such as chats, or novel asynchronous CMC such as screencasts, over Word comments (Ducate & Arnold, 2012; Elola & Oskoz, 2016; Liu & Sadler, 2003), and usually report appreciating face-to-face feedback more than e-feedback, even when the latter leads to deeper revisions (Guardado & Shi, 2007; Liu & Sadler, 2003; Schultz, 2000; Tuzi, 2004). Probing students' perceptions of TEF continues to be important, particularly when researching a combination of media that is not yet well understood (Elola & Oskoz, 2016), and because positive perception is a possible predictor of student willingness to implement TEF (Ducate & Arnold, 2012; Sheen, 2010). Moreover, investigating teacher perceptions is at least as important, if not more so.

It is apparent that an important missing piece in the current research is the comparison of teacher synchronous and asynchronous written e-feedback. As noted above, studies of teacher e-feedback (TEF) on L2 writing are quite scarce, despite the repeated acknowledgments the research has given to the importance of teacher feedback and increased use of e-feedback (Ducate & Arnold, 2012; Elola & Oskoz, 2016, 2017; Ene & Upton, 2014). Previous studies have suggested the need to combine feedback types and research them (Elola & Oskoz, 2016, 2017; Liu & Sadler, 2003; Schultz, 2000). Furthermore, it is important to understand the roles of

synchronous and asynchronous teacher e-feedback in ESL composition courses, as both remain ever so important in the academic lives of ESL learners.

2. Purpose of the study

In order to fill in the gaps in the current research, this study explores the use, effectiveness, and perceptions of e-feedback provided by teachers both synchronously – via online chats – and asynchronously – via comments on electronically exchanged essay files, in university freshman-level ESL writing courses.

3. Research questions

Our investigation was guided by these research questions:

- 1 What does teacher electronic feedback (TEF) provided via synchronous and asynchronous computer-mediated communication focus on?
- 2 How does the effectiveness of TEF differ when it is synchronous versus asynchronous?
- 3 How do teachers and students perceive TEF?

4. Study design

Expanding on an earlier study by [Ene and Upton \(2014\)](#), this corpus-based, mixed-methods study fills in a gap by (a) analyzing TEF from more participants than previously attempted, (b) using data drawn from two levels of English for academic purposes (EAP) composition courses, (c) comparing synchronous and asynchronous TEF as well as uptake, and (d) complementing the quantitative analysis of TEF with survey and interview data about learner and teacher perceptions of TEF.

4.1. Participants

Sixty-four non-native English speaking students participated in the study. They had been placed, through an entrance exam, into credit-bearing courses in the EAP Program and were matriculated in undergraduate programs at a Midwestern U.S. university. Forty-two of the students were from Saudi Arabia, 17 from China, 2 from Korea, 1 each from Mexico, India, and Russia. The three female teachers in the study are highly experienced, with advanced degrees in TESOL. Teachers T1 and T2 had full-time appointments; T3 had been a part-time teacher for more than seven years.

4.2. Materials

4.2.1. Essay drafts and chat

The study examined essay drafts with TEF on assignments submitted by the participants enrolled in one of two levels of composition courses for non-native speakers of English – a basic/developmental writing course (W1 hereafter) and a university-required first-year composition course (W2 hereafter). The materials collected for this study were standard student assignments and reflected natural teacher feedback; teachers were not prompted to modify their assignments or the type, manner, or amount of feedback they offered. The data collected included: (a) drafts, with TEF, of essay assignments from five W1 courses – three of which were online – and three W2 courses – two of which were online; and (b) chats between students and teachers on drafts from each of the W1 and W2 courses.

Students wrote three essays per course. The writing process included three drafts before the submission of the final version of each essay, and students received teacher feedback on each draft. All submissions were made electronically via the course management system used at the institution. The teachers downloaded the student drafts as Microsoft Word documents, typed in their feedback using Word's "insert comment" and "track changes" functions, resaved each document containing feedback, and electronically returned the drafts with feedback to students through the course management system. Asynchronous TEF was collected from each draft (1, 2, and 3) to which the teachers responded this way.

After students received written TEF on Draft 3, they were assigned a time to log into the chat room of the course management system to conference online with the teacher. The chats were text-based, conducted by typing in a text box, and lasted 15–20 min per student. A single chat room that was visible to all of the students in a class was set up, as the instructors thought it would be useful for the students to be able to review the chat later. The chats focused on revisions; no confidential issues such as grades were discussed in the class chat. Synchronous TEF was collected from these online chats, which were intended to provide the students an opportunity to ask questions about their papers and clarify the teachers' prior feedback as needed. The online chats were a regular occurrence in the writing classes of the participating teachers. The sequence of drafts and TEF can be represented as shown in [Fig. 1](#):

To be included in the analysis, an essay had to have at least one draft with asynchronous (via Word comments) and synchronous (via chat) TEF as well as the final draft of the paper. Essays that were not chatted about (because 14 students were absent from their conferences) were excluded, as were chats without corresponding essays. Sixty drafts and 30 final essays were not used in this

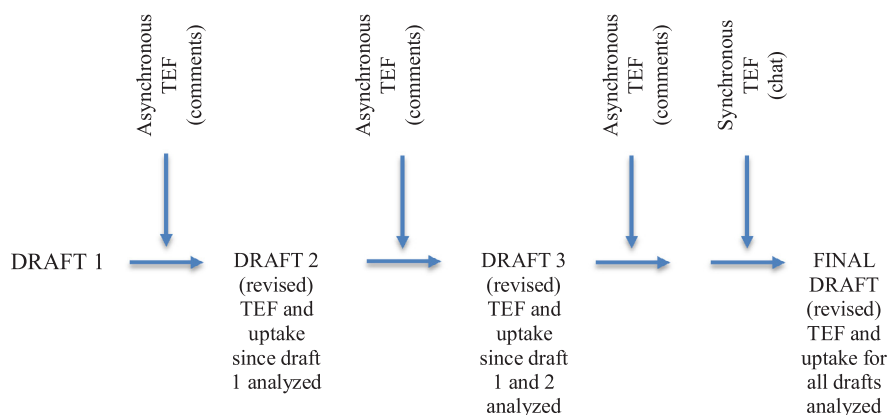


Fig. 1. Sequence of drafts and TEF in W1 and W2 EAP courses.

analysis because of missed submission deadlines or essays being submitted outside of the course management system in which the data were collected. Thirty-two chats were also excluded because they contained social and classroom management exchanges but no asynchronous TEF.

Table 1 shows the number of drafts and chats with TEF available from each teacher (T1, T2, T3), course level (W1, W2), and mode (face-to-face, online).

4.2.2. Student survey

We used a survey to elicit the students' perceptions about the usefulness of TEF and their preferences related to online versus face-to-face EAP writing classes and online versus face-to-face instruction and conferencing. Most of the questions were Likert-type items that yielded quantitative results, with some open-ended comments.

4.2.3. Teacher interview

After the feedback data were collected, the three teachers were interviewed about their broad goals for and specific approaches to providing feedback, both on student papers and in on-line chat discussions. Teacher voices from the interviews are included below to highlight teacher intentions and approaches (Goldstein, 2001; Reid, 1994).

4.3. Data analysis

4.3.1. Feedback and uptake coding

TEF and uptake were analyzed by looking at each draft available. All TEF – including corrections (e.g., underlining, circling, highlighting, crossing out, coding, or correcting), marginal comments, insertions, praises, etc. – was coded in terms of both feedback type and uptake. Draft 1 was a source of asynchronous TEF, which was the only type given at that stage. In Draft 2, we looked for the revisions and corrections (uptake) made based on the TEF given on Draft 1 to determine uptake. The asynchronous TEF given on Draft 2 was analyzed as well. In Draft 3, we looked for the revisions and corrections made based on the TEF given on Draft 2 and we worked our way back through drafts to see if unaddressed TEF from Draft 1 was eventually implemented (however, almost all of the uptake occurred from draft to draft). For Draft 3, the students received asynchronous TEF via Word and then synchronous TEF via the chat. We analyzed the TEF from each source. From the final draft, we analyzed the uptake based on the asynchronous TEF and the synchronous chat, respectively, and we looked at the previous drafts to determine if TEF that had gone previously unaddressed was implemented.

Table 1

Data Sources.

	W1 (T3) Face-to-Face	W1 (T1) Online	W2 (T3) Face-to-Face	W2 (T2) Online	Total
Students	24	18	16	6	64
Drafts	32	29	26	6	93
Chats	32	29	26	6	93

TEF consisting of multiple statements was broken down into individual ideas and each unit derived was coded separately; the boundaries of a TEF unit inside a comment with multiple ideas were determined based on where the focus or characteristic of the feedback shifted. Each TEF unit was taken into account regardless of possible overlap. It is indeed possible for TEF to reoccur across drafts or in comments and the chat alike. Counting each TEF unit regardless of overlap is consistent with the current approach in the existing literature, none of which eliminates repeated feedback or errors from analysis. If a teacher has to repeat the feedback and the student makes an error repeatedly, both the error and the feedback are considered as new occurrences. The quantity and quality of overlap in TEF are the object of a follow-up study.

The TEF codes previously used by Ene and Upton (2014) were utilized. TEF was classified based on the topic/focus of the comment (i.e., organization of ideas, grammar, vocabulary, mechanics, writing process) as well as the directness of correction (i.e., direct vs. indirect), and manner (explicit vs. implicit). Only comments meant to trigger a correction or revision (TEF) were analyzed; when analyzing teacher comments from chats, social (“How are you?”) or classroom management (“Your final draft is due on Thursday”) turns were excluded. The two researchers and two research assistants piloted the coding sheet on student paper drafts with data from the chats and made minor modifications to better incorporate chat data.

One researcher and the two research assistants coded each instance of TEF. After calibrating on a practice subset, the researchers obtained an agreement coefficient of 89%. They then discussed disagreements in a coding session and came to agreement on the final classification.

A second coding sheet categorizing student uptake previously developed by Ene and Upton (2014) was also used. Uptake is operationalized as revisions made in response to feedback and is considered indicative of feedback effectiveness (Storch & Wigglesworth, 2010). Following Storch and Wigglesworth (2010), the uptake of teacher feedback on earlier drafts was coded in terms of the characteristics of the students' responses to that feedback in later drafts: successful, unsuccessful, unattempted, or unverifiable. Modifications that were not made in response to TEF were not coded. If the same TEF was given in both the paper draft and the chat, the same uptake result was recorded for both.

For the quantitative analysis, percentages and mean averages were calculated for each TEF and uptake subcategory. Paired t-tests were used to determine statistically significant trends. In the sections below, we will first describe TEF and uptake globally, then we will provide a detailed analysis of subcategories of TEF and uptake from digital papers and chats, respectively.

4.3.2. Student survey

The Likert-type items in the survey yielded quantitative results; the open-ended comments were analyzed qualitatively. We used a bottom-up approach whereby we read and grouped the comments based on topic in order to identify common themes.

4.3.3. Teacher interview

In the qualitative analysis of the transcribed interviews, also based on a bottom-up approach, we looked for patterns that indicated similar approaches and perceptions, as well as significant differences among the teachers or between their perceptions and student perceptions.

5. Results

5.1. Overview of feedback and uptake

Looking at the data holistically, a total of 1125 comments were given by instructors across all papers and chats (900 on papers and 225 in chats). The comments, broken down as explained above, yielded 1648 TEF units – 1314 from papers and 403 from chats. As shown in Table 2, most TEF (33.5%) focused on content.

Most TEF was either successfully implemented (45.8%) or at least attempted though unsuccessful (25.7%). Only 11.3% of the TEF were unattempted. The success rate of TEF uptake combined with the amount of unsuccessful *but attempted* TEF was 71.5%. The 17.2% of the uptake that were unverifiable were due primarily to TEF that encouraged students to take advantage of the writing center on campus.

Table 2
Overview of TEF.

TEF Breakdown by Focus (# units) (% of total)							
Overall Quality	Content	Organization	Vocabulary	Grammar	Mechanics	Process	Total
20 1.2%	552 33.5%	277 16.8%	248 15.0%	179 10.9%	257 15.6%	115 7.0%	1648 100%

5.2. TEF use and uptake in electronic papers versus text chats

Text-based chats between the teachers and the students occurred after the students received TEF on their electronically-submitted drafts (Draft 3 being the last in the pre-chat sequence) and before the final draft of an essay was due. Each teacher-student interaction lasted about 15 min and was meant to give the students a chance to ask for clarifications about the TEF received prior to the chat as well as ask new questions raised during the revision process. Significantly more TEF was offered via the electronically exchanged drafts than via text chats ($p = 0$). On average, three times more TEF was given in comments on drafts: 13.5 TEF units per draft were given compared to 4.2 per chat. Most TEF – 32.2% of the TEF from electronic papers and 41.4% of the TEF in chats – focused on content in both modalities (Table 3). There was significantly more TEF on content in the papers than in the chats (on average, 4 units per draft compared to 1.7 units per chat; $p = 0$). In the chats, the teachers' attention was more balanced between content and organization, and the TEF on vocabulary, grammar, and mechanics was significantly lower than in the electronic drafts ($p = 0$).

Table 3

TEF focus by modality: electronic drafts vs. text chat.

		TEF on overall quality	TEF on content	TEF on organization	TEF on vocabulary	TEF on grammar	TEF on mechanics	TEF on process	TOTAL TEF
Papers	Number of TEF units	10	406	174	221	156	240	52	1259
	Percentage (number/total)	0.8%	32.2%	13.8%	17.6%	12.4%	19.1%	4.1%	
	Avg. number of TEF units/draft	0.1	4.2*	1.8	2.4*	1.7*	2.6*	0.7	13.5*
Chats	Number of TEF units	7	161	113	18	19	21	50	389
	Percentage (number/total)	1.8%	41.4%	29.0%	4.6%	4.9%	5.4%	12.9%	
	Avg. number of TEF units/draft	0.1	1.7	1.2	0.2	0.2	0.2	0.6	4.2

Table 4

Successful uptake by modality of instruction: papers vs. chats.

		Successful Uptake	Unsuccessful uptake	Unattempted uptake	Unverifiable Uptake	Total TEF
Papers	Number of TEF units	560	322	149	228	1259
	Percentage (number/total)	44.5%	25.6%	11.8%	18.1%	
	Avg. number of TEF units/draft	5.9*	3.6*	1.8*	2.2*	13.5*
Chats	Number of TEF units	196	101	36	56	389
	Percentage (number/total)	50.4%	26.0%	9.3%	14.4%	
	Avg. number of TEF units/draft	2.1	1.1	0.4	0.6	4.2

Both synchronous and asynchronous TEF were effective. In both modalities, there was roughly two times more successful uptake of TEF (44.5% and 50.4%, respectively) than unsuccessful, unattempted, or unverifiable TEF (Table 4). The average number of TEF units that resulted in successful uptake was significantly higher for TEF from electronic papers than for TEF from the chat sessions (5.9 vs. 2.1 units, respectively; $p = 0$).

5.3. Student perceptions of TEF

Overall, as shown in Table 5, students indicated that they found the online chat sessions useful (Q2: 72.6% A + SA (agree or strongly agree) versus 5.9% D + SD (disagree or strongly disagree)). Students indicated they felt that TEF via chats helped them notice their mistakes (Q6: 64.3% A + SA vs. 7.1% D + SD) and gave them the opportunity to correct them in their drafts (Q7: 60.6% A + SA vs. 3.6% D + SD). Very few students felt teacher feedback via online chats was a waste of time (Q10: 5.9% A + SA vs. 63.1% D + SD), with more than half of the respondents indicating that the chats were beneficial to their language development (Q11: 53.6% A + SA vs. 9.5% D + SD). 56% of the students agreed or strongly agreed that the chat moved at the right pace for them, and 42.8% thought that the printable chat transcripts were useful. However, a large percentage of the students also indicated that chatting online with the teacher made them feel self-conscious (Q8: 46.4% S + SA vs. 15.5% D + SD).

Table 5
Student Perceptions of Synchronous TEF via Online Chats (N = 84).^{a,b}

Question (Q)	SD ^c	D	N	A	SA	NR
1. I received useful corrections from my teacher via our chat room conferences.	1 (1.2%)	4 (4.7%)	17 (20.2%)	29 (34.5%)	32 (38.1%)	1 (1.2%)
2. I would prefer face-to-face feedback from my teacher.	1 (1.2%)	3 (3.6%)	16 (19.0%)	26 (31.0%)	37 (44.1%)	1 (1.2%)
3. Through chat room feedback, not only did I notice my own mistakes but also the mistakes of other students.	0 (0%)	6 (7.1%)	23 (27.4%)	37 (44.1%)	17 (20.2%)	1 (1.2%)
4. While chatting, I had the opportunity to correct the mistakes I made in my drafts.	1 (1.2%)	2 (2.4%)	28 (33.3%)	34 (40.5%)	17 (20.2%)	2 (2.4%)
5. Chatting with the teacher made me feel self-conscious.	1 (1.2%)	12 (14.3%)	31 (36.9%)	30 (35.7%)	9 (10.7%)	1 (1.2%)
6. The chat conversations went at the right speed for me.	3 (3.6%)	3 (3.6%)	29 (34.5%)	32 (38.1%)	15 (17.9%)	2 (2.4%)
7. I found the chat room feedback to be a waste of time.	25 (29.8%)	28 (33.3%)	24 (28.6%)	1 (1.2%)	4 (4.7%)	2 (2.4%)
8. I found my chat interactions to be beneficial for my learning of English in general.	1 (1.2%)	7 (8.3%)	30 (35.7%)	33 (39.3%)	12 (14.3%)	1 (1.2%)
9. Printable transcripts were helpful to have after the chat.	0 (0%)	5 (6.0%)	40 (47.6%)	29 (34.5%)	7 (8.3%)	3 (3.6%)

^a Survey results include responses from students in courses but whose papers/chats were not included in TEF analysis. Thirty-four students were from the online classes; their responses were dispersed across categories with no meaningful variation from the overall patterns in the table.

^b Percentages may not total 100% due to rounding.

^c SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree, NR = No Response.

Students provided comments at the end of the survey in response to the open-ended question, “How did you feel about your teacher’s feedback through online chatting?” While the majority of responses confirmed the responses already described above, five students added comments on the pros and cons of the fact that the teacher chatted simultaneously with several students, with all of the students able to see other classmates’ exchanges with the teacher. The advantages two students noted included the following (all student comments in quotes are presented as written by the students):

- “I can read other friends questions.”
- “It helps me to see the question that my classmate ask which are related to my problem.”

The disadvantages expressed by three students included:

- “Sometimes it was hard to talk to [the teacher] while she is talking to other students.”
- “Lots of misunderstanding because we want to talk all at once.”
- “Too many people.”

Interestingly, even though the students saw the benefits of TEF through online chats, they expressed a strong preference for interacting with their teachers face-to-face when receiving feedback on their papers (Q4: 75.1% A + SA vs. 4.8% D + SD). To explain their preference for face-to-face interactions, the students who responded gave the following reasons:

- Explanations are more clear or useful when given face-to-face:
 - “When I’m confused and not sure I like to meet with her face to face.”
 - “Yes I prefer that because students don’t always get the comments.”
 - “Its clear ... compare to via chatrooms.”
 - “We can talk about my essay in more detail.”
- Explanations are faster when given face-to-face:
 - “It is more fast if I get the feedback face to face.”
 - “Due to my slow typing, we would save more time face to face than chat feedback.”
- Students are more comfortable and/or feel more connected with teachers in face-to-face interactions:
 - “I get privacy from other students.”
 - “When we talk face to face, I feel more emotionally connected with my teacher.”
 - “I’m more comfortable in face to face.”
 - “This way is the helpful way for me because in face to face you can tell from the face expression.”

5.4. Teacher perceptions of TEF

All three teachers who participated in this study were interviewed about their broad goals for and specific approaches to

providing feedback, both on student papers and in online chat discussions. All stated that their highest goal, as writing teachers, is to guide students in becoming independent and critical thinkers. T2 observed: “most EAP writing teachers ... see our role as preparing students for what their future holds at the university.” T3 echoed this sentiment saying, “... that’s what I’m looking for whenever I’m making my comments... that they’re understanding why it is that they need to make these changes, and how it’s going to help them outside of this classroom.” T1 described her goals for her students more broadly: “I want them to work on finding the solution [to the problem I’m pointing out]. And I ask questions that lead students down that path towards discovering a solution.”

Another key theme that all three teachers articulated is their focus on the individual needs of the student, especially focusing on higher-order concerns, rather than general language structures. T2 noted that her feedback is:

customized for the student and the student’s needs ... I have students who ... their writing skills are already quite good, and we’re talking about a more elegant way to say something ... With weaker students, I’m looking to see whether they have even grasped the assignment guidelines.

Teacher T3 reflected:

on the first draft especially, what I’m looking at is the overall structure ... on the first draft I give a much broader range of comments. ... As we get into the second draft ... I give them fewer comments about grammar, and those small things...

T1 succinctly noted, “I try to adjust my feedback depending on students’ ability.”

The teachers’ discussions of the asynchronous TEF they provide on student papers versus the synchronous TEF provided during chats further highlight their interest in fostering student autonomy and sensitivity to individual needs. T3 noted, “if they have questions about the comments [on their papers] ... that’s what we will address in the [chat] conference.” T1 responded similarly, “... the goal [of the chats] is to answer the student’s question, whatever it may be.” T2 described the purpose of the chats as being for the student to “ask me a question about the comment I made [asynchronously],” while also pointing out that “what I do [in the chats] depends on the student.”

The teachers found the combination of asynchronous TEF followed soon after by synchronous TEF via chats to be quite effective, especially for the motivated student who takes the time to come to the chat sessions prepared to ask for clarification or talk about alternative approaches. According to T2, “I would never switch to only one of those ways” of giving feedback if both options are available. T3 echoed that sentiment:

I feel like both [approaches] are important in their own ways. But if I had to take one away, I would take away the online chats, because I feel like the students need to actually see, visually, where there are problems...right within their papers.

Similarly, T1 said, “I think it’s a good combination. I think that [the chat] is an opportunity to engage the students, to push [them] to engage with the feedback [on the papers] more.”

6. Discussion

In order to address the scarcity of research on teacher feedback in increasingly common electronic environments, we explored the use and effectiveness of TEF offered asynchronously on papers and synchronously via text-based chats in two levels of first-year ESL composition. We triangulated the analysis of TEF and uptake data with student and teacher perceptions about TEF.

With regard to our first research question on the focus of the two types of TEF provided in this study, our main finding is that much of the TEF, regardless of modality, was content-focused. Even so, the quantitative analysis also showed that while TEF on content dominated, other areas of language and writing, including grammar and vocabulary, also received attention. Such observations about the focus of feedback reflect the prevailing programmatic and pedagogical philosophies in L2 writing that prioritize higher-order concerns in L2 writing instruction (Ene & Upton, 2014; Ferris, 1997; Hyland & Hyland, 2001). The focus on content in feedback on L2 student writing has been noticed in other studies, including studies on handwritten feedback (Ferris, 1997, 2001; Hyland & Hyland, 2001; Zamel, 1982), peer e-feedback used by advanced learners (Schultz, 2000), as well as TEF (Ene & Upton, 2014). It is studies like these, and this study, that look at the impact of feedback on not only linguistic accuracy but also content and global factors like rhetorical organization, that have noted the primacy of content-focused feedback. In fact, several studies that highlight the impact of e-feedback on linguistic accuracy have, for the most part, ignored feedback on content (e.g., Tolosa et al., 2013; Vinagre & Muñoz, 2011; Ware & O’Dowd, 2008).

Furthermore, our study illustrates the use of two electronic modalities in ways that complement and enhance one another. In our case, the combined use of asynchronous Word comments and synchronous text-based chats facilitated a focus on higher-order concerns. Others (Ducate & Arnold, 2012; Elola & Oskoz, 2016) have also observed that combining two modalities for providing e-feedback allows teachers to use them in complementary ways. The Spanish teacher in Elola and Oskoz (2016), for example, used the two modalities to focus on form in her Word comments, and on content and style in the screencast. While further research is needed to refine our understanding of various combinations of TEF, our study joins the growing body of literature that offers models of productive implementation.

Additionally, the use of e-feedback by teachers appears to differ in focus from peer e-feedback. Studies looking at peer e-feedback have noted that peers in general provide less feedback on higher-order concerns, which has been explained as a reflection of their linguistic limitations (Schultz, 2000; Tolosa et al., 2013), lack of training and patience for using e-feedback or lack of confidence in providing feedback in general (DiGiovanni & Nagaswami, 2001; Liu & Sadler, 2003; Schultz, 2000).

Our findings also highlight some limitations posed by the short time spent chatting. Quantitatively, the average amount of

written, asynchronous TEF given on an electronic draft was significantly higher than the quantity of TEF offered during the chat, even though both prioritized feedback on content over a focus on grammar or vocabulary. The short time allotted for chatting may have been a reason why 32 (25.6%) of the 125 chats contained no corrective, revision-oriented feedback. Schultz (2000) and Liu and Sadler (2003) also reported concerns related to the inefficiency of chats as well as chats and asynchronous comments compared to face-to-face peer-review. However, unlike these studies, the feedback we analyzed did not take up class time, but rather used time that was going to be spent conferencing with the students anyway. Our findings suggest that the time limitations of the chat may have helped focus the interaction on higher order concerns. Therefore, we argue that chatting at the end of a sequence of drafts provides an opportunity to reinforce prior feedback and focus students on higher-order concerns.

Related to our second research question looking at comparative effectiveness of the two modes of TEF used in this study, our analysis showed significantly more successful uptake of asynchronous TEF from electronic drafts, likely because significantly more TEF was given asynchronously to begin with. However, the proportion of TEF that resulted in successful uptake was similarly high for both synchronous and asynchronous TEF (44.5% and 50.4%, respectively). This attests to the value of combining various means of providing TEF – as also suggested by Elola and Oskoz (2016); Liu and Sadler (2003); Schultz (2000), and Tuzi (2004) – in order to maximize opportunities for the students to notice and understand it.

Since both synchronous and asynchronous TEF led to revisions, our results show that TEF can be as influential as handwritten feedback (Ferris, 2007), peer synchronous feedback (Liu & Sadler, 2003; Schultz, 2000), and other combinations of TEF (Elola & Oskoz, 2016). However, as noted in the results, 32 of the 125 chats (25.6%) contained no corrective TEF. This suggests that teachers should better prepare students to make more effective use of these opportunities, which has also been suggested by Elola and Oskoz (2016); Liu and Sadler (2003), and Schultz (2000). Further investigations are needed to determine the mechanisms that make chats an effective means of providing TEF, from logistics to teacher-student interaction and TEF characteristics other than focus.

This study underscores that students attend to and benefit from instructor feedback, whether it be handwritten (Ferris et al., 1997), asynchronous TEF manifested as Word comments (Ducate & Arnold, 2012; Elola & Oskoz, 2016; Ene & Upton, 2014), or multimodal TEF (Ducate & Arnold, 2012; Elola & Oskoz, 2016, 2017). Teachers often are, after all, students' main audience (Ware, 2004). Additionally, we show that TEF that consistently targets higher order concerns results in successful, or at least attempted, revisions. Our study highlights the importance of focused feedback that is fine-tuned to the needs of the learners (Ene and Upton, 2014; Ferris et al., 2013; see also Bitchener & Ferris, 2012; Ellis, 2009). As with Elola and Oskoz (2016), it is likely that the fairly high rate of successful uptake of TEF in this study is because the TEF was appropriate for the students' level.

Our study also supports the process-based, multi-draft approach to L2 writing. As noted by Ware and Warschauer (2006), "writing performance improves when students receive detailed comments across several iterations of their writing" (p. 116). This study shows that students respond to TEF across drafts of their papers, and that both synchronous and asynchronous TEF lead to uptake, also suggesting that a combination of feedback sources may further enhance the L2 writing process and learners' performance, as discussed above. Indeed, it appears that chatting can be a useful part of the writing process (Honeycutt, 2001).

Finally, the third research question we investigated focused on how teachers and students perceive TEF. In brief, both had positive views of TEF. The teachers very much viewed their feedback as being tailored to specific students, for specific assignments, and for specific stages of the writing process, framed within the larger philosophy that higher order concerns are a priority, regardless of how the feedback is provided (electronically or otherwise). The results of this study align with these beliefs and the teachers' goal for chat sessions: to help students become independent, critical thinkers prepared for university classes. This philosophy closely resembles Ferris's (2010) suggestion that the long-term role of feedback (specifically, indirect feedback) is to engage learners in "guided-problem solving" (p. 190). The teachers viewed the combination of synchronous and asynchronous TEF as beneficial, as this approach supported their goal of focusing TEF on higher-order concerns and critical thinking while also adapting to the students' proficiency level and individual needs – although if they had to choose only one, they saw asynchronous TEF as the most effective and efficient. As teachers' perceptions about TEF have been underexplored, our study provides a valuable reference point for future studies.

Overall, the students also had a positive perception of the usefulness of chats, and both the teachers' and the students' perceptions were supported by the quantitative analysis of TEF and uptake. The students in our study acknowledged the usefulness of chats in supporting their development as language learners and writers, as also found by Blake and Zyzik (2003); DiGiovanni and Nagaswami (2001); Liu and Sadler (2003); Morris (2005); Sauro (2009), and Schultz (2000) about peer feedback. They liked the pace of the chat and the opportunity to refer back to transcripts. The pace and durability of chats, and CMC in general, have been acknowledged before as characteristics that support L2 learning and writing (Liu & Sadler, 2003; Sauro, 2009; Schultz, 2000), as our study concurs. However, the time restrictions pointed out by the teachers, as well as the self-consciousness reported by many students, reinforce that using only chats to provide TEF on L2 writing may not be ideal. No doubt one reason that chat feedback was more limited is reflected by the fact that 46.4% of the students felt that "chatting with the teacher made [them] feel self-conscious." Addressing the affective discomfort that some students have with chats and seeking ways to make them less intimidating would likely increase the efficacy of chats. As noted by Goldstein (2005), the success of feedback depends on many influencing factors that affect both teachers and students, ranging from individual attitude, personality, proficiency, and motivation to institutional and programmatic constraints. The messiness of chats, with sometimes overlapping conversations between users, would be an additional element for teachers to better control. It is clearly important for teachers to be proactive in preparing students for feedback in general and TEF in particular, including how to take best advantage of chats (Liu & Sadler, 2003; Schultz, 2000; Tuzi, 2004). All in all, however, the finding that a large quantity of synchronous TEF was successfully implemented underscores its pedagogical effectiveness, overriding other concerns, which can be addressed by practitioners as suggested.

Student perceptions highlight the continued relevance of face-to-face feedback. Like most students surveyed in other studies, our learners would have preferred face-to-face feedback for its faster pace, opportunities for negotiation and clarification, and personal

feel (Liu & Sadler, 2003; Tuzi, 2004), and likely also because they are accustomed to it (Tuzi, 2004). Despite benefitting from e-feedback, students in our study and others seem to remain affectively biased in favor of face-to-face feedback, and this remains one of the challenges to using TEF and even CALL.

Triangulated, the findings of our study suggest TEF that involves the combined use of asynchronous Word comments and synchronous text-based chats is beneficial in ESL composition, and that teachers and students perceive TEF positively. Our recommendation is that teachers carefully think through how they will incorporate various types of e-feedback, including addressing students' inherent preference for face-to-face feedback. As importantly, teachers need to make sure students are adequately prepared for how to best use the e-feedback in order to maximize learning opportunities. Given the scarcity of studies on TEF in ESL composition, the topic remains important for future research, which should continue to study synchronous and asynchronous TEF as well as various combinations of face-to-face and multimodal feedback. Although our study included both face-to-face and online courses, the fact that the participating teachers did not teach both course types is a limitation. Further research should also examine the discourse features of TEF and the types of CF embedded in it that might contribute to its success. Similarly, our research focused on the combined effect of synchronous and asynchronous TEF, rather than their separate effectiveness, largely due to the fact that the data collected were naturalistic. A naturalistic design reflects classroom practices and has relevance to practitioners, but it has its own limitations (Ducate & Arnold, 2012; Hyland & Hyland, 2006a). Due to the design of the classes we researched, the separate effects of asynchronous and synchronous TEF offered just before the final revision are difficult to separate. This can be addressed in future research.

7. Conclusion

Our analysis of TEF realized as asynchronous Word comments and synchronous text-based chats, collected from several university-level ESL writing classes taught by three different experienced teachers, demonstrates the value of combining synchronous and asynchronous TEF, and the generally positive perceptions teachers and students have of it. Above, we discussed relationships between the use and effectiveness of TEF and instructors' philosophy of L2 writing pedagogy, level of expertise with (e)feedback, sequencing of synchronous and asynchronous TEF, and affective factors that may influence its effectiveness. The effects of asynchronous as well as synchronous TEF in this study indicate that, as a negotiation-based, dialogic process, TEF supports second language acquisition and writing. On a larger scale, our goal is to understand how feedback in general, and TEF specifically, can best be used not only to improve linguistic accuracy and the general writing performance of our learners, but to "help students improve learning, to motivate them, and to make them autonomous writers in the long run (i.e., by providing mediated learning experience through feedback)" (Lee, 2014, p. 208). As Elola and Oskoz (2016, 2017) note, the field of L2 writing should pay attention to digitally-mediated feedback as an important affordance of 21st century literacy and pedagogy. Through high-quality teacher training, we hope TEF can be used transformatively to provide the formative feedback that Lee (2014) calls for in our academic ESL writing courses.

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